CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/KRIDL/W.No.13/BC/Sp_Wa/2017-18 13.01.2018

TEST REEPORT ON SPECIFIC GRAVITY AND WATER ABSORPTION

* Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	: **Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	: Improvements to Roads and asphalting at pipeline road to Maheshwaramma temple and other roads in Mallasandra Ward No.13 in Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	: BBMP/EE/DD/WO/145/2017-18 Dated: 21.12.2017
* Sample ID	: Hot mix plant, Bangalore
Technical Reference	: IS : 2386(Part -3)-1963 (RA-2011)
* Type of Mix	: Bituminous Concrete
Date of Testing	: 13.01.2018

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2004	2005	2006	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1239	1238	1251	
4	Weight of saturated surface dry aggregate in air	W_3 g	2003	2004	2005	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	764	766	754	
6	Weight of oven dried aggregate	W_4 g	1994	1996	1998	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.610	2.606	2.650	2.622
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.641	2.633	2.675	2.650
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.45%	0.40%	0.35%	0.40%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

Civil-tech Consultants & Engineers

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.

Tele Fax : 23223227, Website : www.civiltechconsultants.com

E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

Scanned by CamScanner

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No: CTCE/BBMP/KRIDL/W.No.13/BC/Bitumen/2017-18 13.01.2018

TEST REPORT ON BITUMEN CONTENT OF BITUMINOUS CONCRETE MIX

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvements to Roads and asphalting at pipeline road to Maheshwaramma temple and other roads in Mallasandra Ward No.13 in Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/145/2017-18 Dated: 21.12.2017
* Sample ID	:	Road from pipeline road to Maheshwaramma temple Mallasandra Ward
Technical Reference	:	IRC:SP:11-1984
Date of Testing	:	13.01.2018

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472	472
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	28	28.00
7. Bitumen content in %	5.60	5.60
8. Average	**5.60**	

*Information is furnished by the Customer/Representative.

Civil-Tech Consultants & Engineers Bangalore

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

****

Civil-tech Consultants & Engineers
#23/14, 7th Cross, 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

Scanned by CamScanner

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

13.01.2018

Job No: CTCE/BBMP/KRIDL/W.No.13/BC/Bitumen/2017-18

TEST REPORT ON BITUMEN CONTENT AFTER GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

* Customer	:	Asst. Executive Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	Technical Manager (West), KRIDL, Bangalore.
* Name of Work	:	Improvements to Roads and asphalting at pipeline road to Maheshwaramma temple and other roads in Mallasandra Ward No.13 in Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/145/2017-18 Dated: 21.12.2017
* Sample ID	:	Road from pipeline road to Maheshwaramma temple Mallasandra Ward No.13
Technical Reference	:	IS 2386 and IRC:SP:11-1984
Date of Testing	:	13.01.2018

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	34.15	7.24	7.24	92.76	79-100
9.5	36.32	7.69	14.93	85.07	70-88
4.75	72.25	15.31	30.24	69.76	53-71
2.36	64.56	13.68	43.92	56.08	42-58
1.18	56.36	11.94	55.86	44.14	34-48
0.6	52.52	11.13	66.98	33.02	26-38
0.3	45.25	9.59	76.57	23.43	18-28
0.15	35.12	7.44	84.01	15.99	12-20
0.075	42.26	8.95	92.96	7.04	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	35.12	7.44	7.44	92.56	79-100
9.5	46.65	9.88	17.32	82.68	70-88
4.75	66.35	14.06	31.38	68.62	53-71
2.36	75.25	15.94	47.32	52.68	42-58
1.18	64.23	13.61	60.93	39.07	34-48
0.6	53.24	11.28	72.21	27.79	26-38
0.3	31.26	6.62	78.83	21.17	18-28
0.15	25.22	5.34	84.18	15.82	12-20
0.075	38.26	8.11	92.28	7.72	4-10

*Information is furnished by the Customer/Representative.

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

Civil-tech Consultants & Engineers

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.

Tele Fax : 23223227, Website : www.civiltechconsultants.com

E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

Scanned by CamScanner

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

13.01.2018

Job No.: CTCE/BBMP/KRIDL/W.No.13/BC/Agg/2017-18

TEST REPORT ON GRADATION OF AGGREGATE

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvements to Roads and asphalting at pipeline road to Maheshwaramma temple and other roads in Mallasandra Ward No.13 in Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/145/2017-18 Dated: 21.12.2017
* Sample ID	:	Bituminous Concrete
Technical Reference	:	IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	:	Hot mix plant, Bangalore
Date of Testing	:	13.01.2018

Total Weight of Sample: **5250** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per `MORTH 500-18
13.2	765	14.57	14.57	85.43	79 - 100	
9.5	580	11.05	25.62	74.38	70 - 88	
4.75	650	12.38	38.00	62.00	53 - 71	
2.36	565	10.76	48.76	51.24	42 - 58	
1.18	545	10.38	59.14	40.86	34 - 48	
0.600	580	11.05	70.19	29.81	26 - 38	
0.300	540	10.29	80.48	19.52	18 - 28	
0.150	300	5.71	86.19	13.81	12 - 20	
0.075	385	7.33	93.52	6.48	4 - 10	

Total Weight of Sample: **5300** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH 500-18
13.2	585	11.04	11.04	88.96	79 - 100	
9.5	625	11.79	22.83	77.17	70 - 88	
4.75	630	11.89	34.72	65.28	53 - 71	
2.36	590	11.13	45.85	54.15	42 - 58	
1.18	600	11.32	57.17	42.83	34 - 48	
0.600	525	9.91	67.08	32.92	26 - 38	
0.300	515	9.72	76.79	23.21	18 - 28	
0.150	365	6.89	83.68	16.32	12 - 20	
0.075	480	9.06	92.74	7.26	4 - 10	

*Information is furnished by the Customer/Representative.

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

Civil-tech Consultants & Engineers

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.

Tele Fax : 23223227, Website : www.civiltechconsultants.com

E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

Scanned by CamScanner

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/KRIDL/W.No.13/BC/Stability/2017-18

13.01.2018

TEST REPORT ON MARSHALL STABILITY OF MIX

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
*Name of the Work	:	Improvements to Roads and asphalting at pipeline road to Maheshwaramma temple and other roads in Mallasandra Ward No.13 in Shettyhalli Sub Division, BBMP, Bangalore.
*Reference	:	BBMP/EE/DD/WO/145/2017-18 Dated: 21.12.2017
* Source	:	Hot mix Plant, Bangalore
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	13.01.2018

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshall Stability (Kn at 60°C)	9.40	9.65	9 Kn (min)
2	Marshall flow (mm)	3.25	3.90	2 – 4
3	Voids in Compacted Mix %	3.25	4.25	3 – 6
4	Percent voids in Mineral Aggregate (VMA)	13.60	14.20	13 - 15
5	Percent Voids filled with Bitumen (VFB)	68.25	69.30	65 - 75
6	Density, g/cc	2.26	2.27	--

*Information is furnished by the Customer/Representative.

Note:

⇒ The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

****

AE-13

Civil-tech Consultants & Engineers
#23/14, 7th Cross 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

Scanned by CamScanner